a projection system, optically connected to the detection target surface, for projecting a light beam along an oblique direction onto the detection target surface;

a light-receiving system, optically connected to the detection target surface, for receiving a light beam reflected by the detection target surface;

a light beam deflector, provided, at least, either in an optical path of the projection optical system or in an optical path of the light-receiving system, having an even number of reflection surfaces to allow an incident light beam to exit at an angle that is not parallel to the incident light beam,

wherein the surface position of the detection target surface is detected based upon an output from the light-receiving system.

92. (New) The surface position detection device of claim 91, wherein the light beam deflector includes a prism having a pairing of reflection surfaces that are not parallel to each other.

93. (New) The surface position detection device of claim 92, wherein the prism includes:

a first transmission surface through which the incident light beam is transmitted;

a first reflection surface at which the light beam; having been transmitted through the first transmission surface and propagated through an inside of the prism, is reflected;

a second reflection surface, at which the light beam having been reflected at the first reflection surface and propagated through the inside of the prism, is reflected along an optical path intersecting an optical path of the light beam having been transmitted through the first transmission surface;

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and a second transmission surface through which the light beam, having been reflected at the second reflection surface and propagated through the inside of the prism, is transmitted.

94. (New) The surface position detection device of claim 93, wherein an angle formed by the first and second reflection surfaces is set within a range of 40° or more and less than 45°.

95. (New) The surface position detection device of claim 94, wherein the prism comprises a low-dispersion optical material with an Abbe number of 65 or higher.

96. (New) The surface position detection device of claim 94, wherein the prism comprises a low thermal expansion optical material with a thermal expansion coefficient equal to or lower than 1ppm/K.

97. (New) The surface position detection device of claim 92, wherein the prism comprises a low-dispersion optical material with an Abbe number of 65 or higher.

98. (New) The surface position detection device of claim 92, wherein the prism comprises a low thermal expansion optical material with a thermal expansion coefficient equal to or lower than 1ppm/K.

99. (New) The surface position detection device of claim 91, wherein the light beam deflector includes a pair of reflection mirrors, and a holding member mechanically connected to the pair of reflection mirrors.

100. (New) The surface position detection device of claim 99, wherein the pair of reflection mirrors reflect the incident light beam along an optical path intersecting an optical path of the incident light beam.

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101. (New) The surface position detection device of claim 100, wherein the holding member comprises a low thermal expansion with a thermal expansion coefficient equal to or lower than 1 ppm/K.

102. (New) The surface position detection device of claim 99, wherein the holding member comprises a low thermal expansion material with a thermal expansion coefficient equal to or lower than 1ppm/K.

103. (New) The surface position detection device of claim 91, wherein the reflection surfaces of the light beam deflector reflect the incident light beam along an optical path intersecting an optical path of the incident light beam.

104. (New) An exposure apparatus for exposing a pattern of a mask onto a photosensitive substrate, comprising:

the surface position detection device of claim 91, optically connected to the photosensitive substrates;

a surface holder; and

a controller,

wherein the controller controls a position of the substrate holder based upon an output from the surface position detection device.

105. (New) A method for exposing a pattern of a mask onto a substrate, comprising:

detecting a position of the substrate with the surface position detection device of claim 91;

controlling the position of the substrate based upon an output from the surface position detection device; and

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exposing the pattern of the mask onto the substrate.

106. (New) A method for detecting a surface position of a detection target comprising:

projecting a light beam along an oblique directing onto the detection target surface;

receiving a light beam reflected by the detection target surface;

deflecting at least either one of an optical path of the projected light beam or an optical path of the received light beam with an even number of reflection surfaces to allow an incident light beam to exit an angle that is not parallel to the incident light beam; and

detecting the surface position of the detection target based upon the received light beam.

107. (New) The method of claim 106, wherein the reflection surfaces reflect the incident light beam along an optical path intersecting an optical path of the incident light beam.

108. (New) The method of claim 107, wherein the reflection surfaces are formed on a prism.

109. (New) The method of claim 108, wherein the prism comprises a low-dispersion optical material with an Abbe number of 65 or higher.

110. (New) The method of claim 108, wherein the prism comprises a low thermal expansion material with a thermal expansion coefficient equal to or lower than 1ppm/K.

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111. (New) The method of claim 107, wherein the reflection surfaces are formed on surfaces of mirrors which are held by a holding member.

112. (New) The method of claim 111, wherein the holding member comprises a low thermal expansion material with a thermal expansion coefficient equal to or lower than 1ppm/K.

113. (New) The method of claim 107, wherein an angle formed by the reflection surfaces is set within a range of 40° or more and less than 45°.

A1 Cont.

114. (New) A method of exposing a pattern of a mask onto a substrate, comprising:

detecting a position of the substrate with the method of claim 106 using a detecting device;

controlling the position of the substrate based upon an output from the surface position detecting device; and

exposing the pattern of the mask onto the substrate.

REMARKS

If there is any fee due in connection with the filing of this Preliminary Amendment, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

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